

Table 5 characteristics of viscous adhesive compositions

| | Composition amount (% by weight) | | | Kind of component (1) | Melt viscosity (cP at 160°C) | Softening point (°C) | Loop tack (gf) | Adhesive power (gf/10mm) | Relativity (minute) | Melt viscosity change ratio |
|--------------|----------------------------------|---------------|---------------|-----------------------|------------------------------|----------------------|----------------|--------------------------|---------------------|-----------------------------|
| | Component (1) | Component (2) | Component (3) | | | | | | | |
| Example 7 | 100 | 250 | 60 | Polymer 22 | 3,200 | 79.0 | | 1,580 | 4.3 | -23 |
| Example 8 | 100 | 250 | 60 | Polymer 23 | 5,120 | 84.3 | | 1,560 | 4.7 | -25 |
| Com. Ex. 16 | 100 | 250 | 60 | Polymer 20 | 19,300 | *1 | | 1,940 | 1.9 | *1 |
| Com. Ex. 17 | 100 | 250 | 60 | Polymer 21 | 3,500 | 77.5 | | 1,690 | 3.5 | +42 |
| Com. Ex. 18 | 100 | 250 | 60 | Polymer 24 | 7,800 | 88.8 | | 1,400 | 10.5 | -11 |
| Com. Ex. 19 | 100 | 250 | 60 | Polymer 25 | 17,200 | 115.4 | | 300 | 100 | -31 |
| Com. Ex. 20 | 100 | 250 | 60 | Polymer 26 | 3,100 | 87.5 | | 760 | 4.0 | +65 |
| Example 9 | 100 | 250 | 60 | Polymer 27 | 2,280 | 87.3 | 1,060 | 1,610 | 12.2 | -5 |
| Comp. Ex. 27 | | | | | | | | | | |
| Com. Ex. 21 | 100 | 250 | 60 | Polymer 28 | 28,000 | 65.3 | 320 | 230 | 0.2 | -15 |
| Com. Ex. 22 | 100 | 250 | 60 | Polymer 29 | 1,560 | 92.5 | 0 | 0 | 0 | -8 |
| Example 10 | 100 | 250 | 60 | Polymer 30 | 2,150 | 87.1 | 1,020 | 1,590 | 10.2 | -5 |
| Com. Ex. 23 | 100 | 250 | 60 | Polymer 31 | 1,480 | 74.0 | 1,070 | 1,510 | 1.4 | -4 |
| Com. Ex. 24 | 100 | 250 | 60 | Polymer 32 | 75,000 | 106.5 | 260 | 1,610 | 168 | -50 |
| Example 11 | 100 | 250 | 60 | Polymer 33 | 1,720 | 92.1 | 1,760 | 1,550 | 37.9 | -5 |
| Example 12 | 100 | 250 | 60 | Polymer 34 | 4,320 | 99.8 | 550 | 1,840 | 116 | -9 |
| Example 13 | 100 | 250 | 60 | Polymer 35 | 2,050 | 91.7 | 1,830 | 1,610 | 32.6 | -11 |
| Example 14 | 100 | 250 | 60 | Polymer 36 | 4,680 | 97.6 | 670 | 1,870 | 104 | -22 |
| Example 15 | 100 | 50 | 30 | Polymer 22 | 4,970 | 100.5 | 920 | 1,080 | 780 | -26 |
| Example 16 | 100 | 270 | 50 | Polymer 22 | 2,970 | 84.4 | 1,220 | 1,790 | 4.8 | -19 |
| Example 17 | 100 | 350 | 0 | Polymer 22 | 5,800 | 108.5 | 520 | 2,080 | 25.3 | -26 |
| Com. Ex. 25 | 100 | 10 | 20 | Polymer 22 | 14,800 | 118.0 | 800 | 330 | 114 | -62 |
| Com. Ex. 26 | 100 | 450 | 70 | Polymer 22 | 1,460 | 91.7 | 130 | 1,710 | 0.7 | -10 |

Component (1) : Block copolymer

Component (2-1) : Alicyclic petroleum resin (Arcan M100, produced by Arakawa Kagaku)

Component (3) : Paraffin based process oil (PW-90, produced by Idemitsu Kosan)

*1 Measurement was impossible due to gelation

Table 6 characteristics of viscous adhesive compositions

| | Composition amount(% by weight) | | | Kind of component (1) | Melt viscosity (η , at 160°C) | Softening point (°C) | Loop back (gf) | Adhesive power (gf/10mm) | Retentivity (minute) | Melt viscosity change ratio (%) |
|------------------------------|---------------------------------|--------------------|------------------|--------------------------|--|----------------------------|----------------------|--------------------------------|-------------------------|---------------------------------------|
| | Component (1) | Component (2-2) | Component (3) | | | | | | | |
| Example 18 | 100 | 250 | 60 | Polymer 22 | 2,600 | 90.4 | 1,560 | 1,380 | 4.1 | -12 |
| Example 19 Comp. Ex 28 | 100 | 250 | 60 | Polymer 27 | 2,640 | 105.2 | 960 | 1,520 | 25.3 | -18 |
| Example 20 | 100 | 250 | 60 | Polymer 30 | 2,360 | 103.0 | 950 | 1,490 | 9.6 | -5 |
| Example 21 | 100 | 250 | 60 | Polymer 33 | 4,400 | 110.4 | 2,650 | 1,640 | 8.5 | -18 |

Component (1) : Block copolymer

Component (2-2) : Aliphatic petroleum resin (Escolets 1310, produced by Esso Kagaku)

Component (3) : Paraffin based process oil (PW-90, produced by Idemitsu Kosan)

Table A

| | Polymer | Vinyl bonding amount (V) | Hydrogenation ratio (H) | Vinyl bond hydrogenation ratio (B) | Characteristics of viscous adhesive composition | | |
|-------------|---------|--------------------------|-------------------------|------------------------------------|---|----------------------|-----------------------------|
| | | | | | Adhesive power (gf/10mm) | Retentivity (minute) | Melt viscosity change ratio |
| Example 7 | 22 | 50 | 60 | 97 | 1,580 | 4.3 | -23 |
| Com. Ex. 17 | 21 | 50 | 40 | 73 | 1,690 | 3.5 | 42 |
| Com. Ex. 19 | 25 | 14 | 55 | 94 | 300 | 100 | -31 |
| Com. Ex. 20 | 26 | 85 | 60 | 67 | 760 | 4.0 | 65 |

Table B

| | Polymer | Vinyl bonding amount (V) | Hydrogenation ratio (H) | Vinyl bond hydrogenation ratio (B) | Characteristics of viscous adhesive composition | | | |
|------------|---------|--------------------------|-------------------------|------------------------------------|---|----------------------|----------------|----------------------|
| | | | | | Melt viscosity (cP.at 160°C) | Softening point (°C) | Loop tack (gf) | Retentivity (minute) |
| Example 11 | 33 | 40 | 45 | 95 | 1720 | 92.1 | 1760 | 12.2 |
| Example 9 | 27 | 36 | 46 | 98 | 2280 | 87.3 | 1060 | 37.9 |